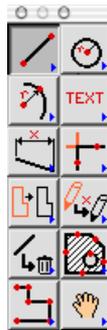


CADintosh — An Introduction

CADintosh is a professional drawing program that you can use to draw the plan of a house, for example. If you have previously worked with graphics programs like QuarkXPress and Photoshop, you will find the methods used in CADintosh totally different. In these programs, you draw rectangles in one action with a rectangle tool. CADintosh does not have this kind of tool as lines are used as the basis for technical drawings.

When you start CADintosh for the first time, a number of palettes will appear on the screen that we will not need for this introduction. Close all palettes except for the toolbox by clicking the round close box at the top left. You can display these palettes again using the **Window** menu. The toolbox is at the top right of the screen.

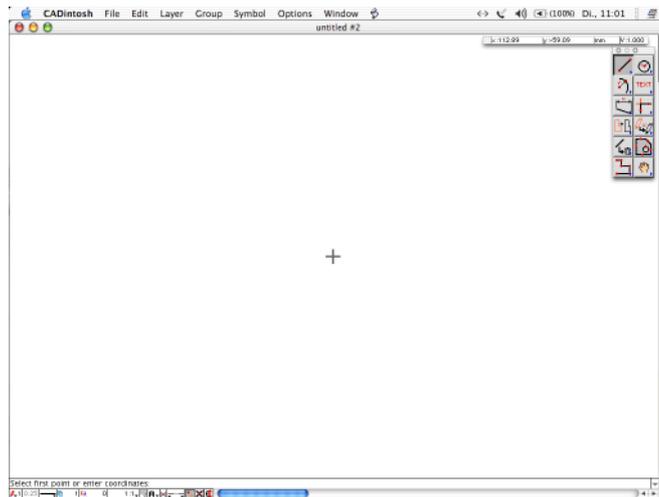


Select **File / New**. A dialog where you can enter details on the drawing opens.

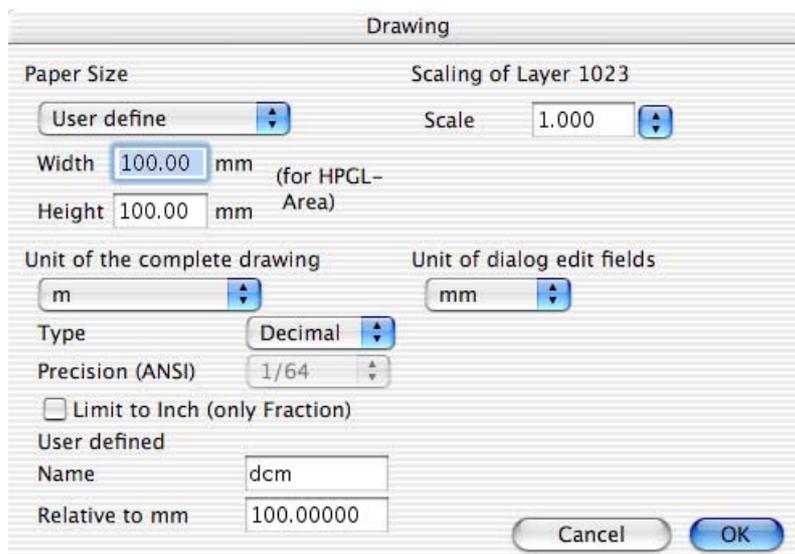
A dialog box titled 'Drawing Data' with a grey title bar. It contains several input fields and buttons. The fields are: Drawing-No. (with a blue border), Sheet (1), Sheets (1), Description, Usage, Paper Size, Scale (1:1), Date of Creation (5.8.2003), Creator, Date of Checking, Checker, Changing, Changer, Index, Change, Source, Material, Replacement for, Replaced thro., and Note. At the bottom right, there are 'Cancel' and 'OK' buttons.

Leave all boxes unchanged and click **OK**. CADintosh will then open a new document showing a white work area. There is a cross in the middle to aid your orientation. This is not part of the

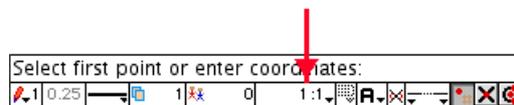
drawing and will not appear on printouts.



Click **Options / Drawing** to open the following dialog:

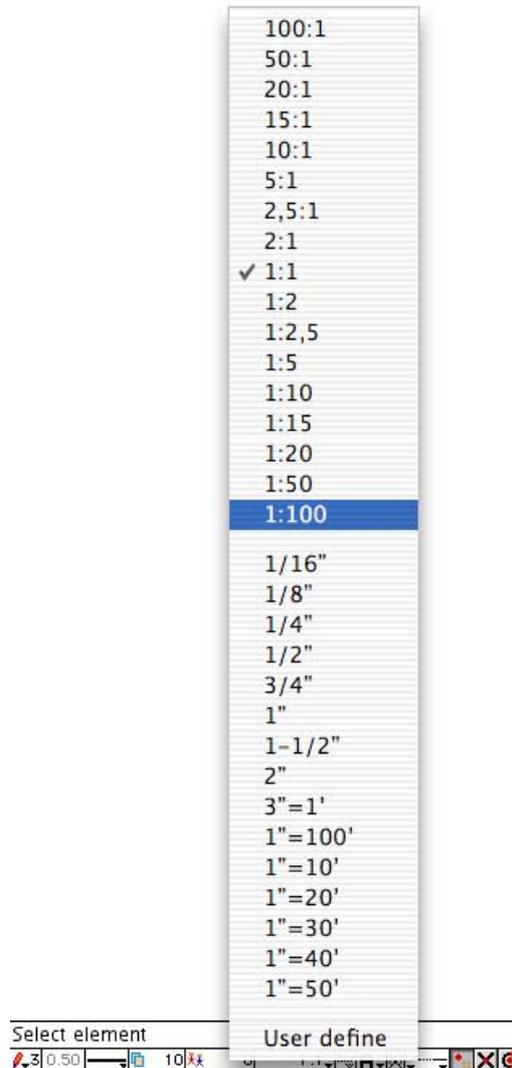


In the Unit of the complete drawing pop-up menu, select m (meter) as the unit and close the dialog. At the bottom left of the window frame, open the pop-up menu for the scale that is still currently 1:1.

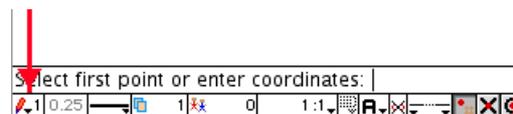


The open pop-up menu will not be displayed completely. Move the mouse cursor over the number area and then down again onto the arrow pointing downwards. The pop-up menu will

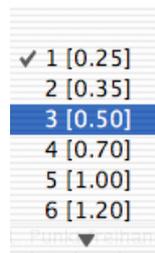
now appear completely.



You can select 1:100 for the scale as a drawing of an average house normally fits on a DIN A4 sheet. Before you draw the first line, select a few other details like the line thickness. Click the pop-up menu on the left:

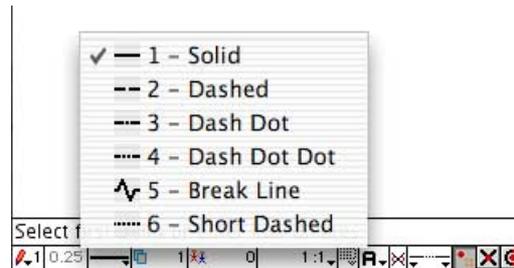


Select pen **3** in the pop-up menu which draws lines with a thickness of **0.5** mm.



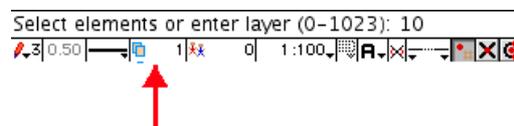
The solid line has already been set correctly two menus to the right. Open the menu to check.

If the check mark is next to the solid line, you can close the pop-up menu by clicking next to it.



In CADintosh, you can create parts of your drawing on different layers. Imagine the layers to be like transparent sheets on an overhead projector. For example, it is useful to place all furnishings for a floor plan on a different level to the actual floor plan because the different layers can be hidden and displayed individually. You can then save the floor plan at any time as a file in standard DXF format without the furniture for use by an architect. Click **File / Save As...** and select the format in the file selection dialog.

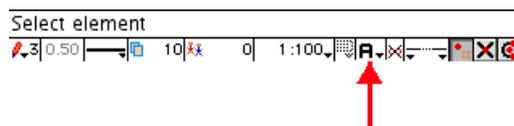
In our example, we will start our drawing on layer 10 so that the layers 0 to 9 below that are kept free for possible extensions. Click the fourth box from the left in the bottom left corner of the window.



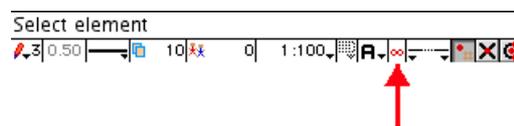
The following query appears in the line above that: **Select elements or enter layer (0-32000):** Enter **10** for layer 10 after the colon. There is a cursor at this position. Press Return to complete your entry.

Two figures are shown for the groups one box further to the right. There is zero on the right in this box. If another value is displayed, change the value to zero. Repeat this for the layer setting. This setting does not need to be explained at this point.

An **A** should appear in the eighth box from the left. This **A** stands for **All** as a selective filter. The selective filter defines which elements should be effected by your actions. This setting does not need to be explained at this point.

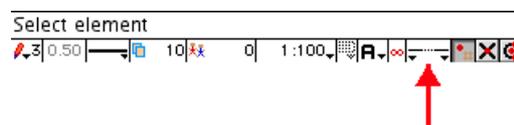


The sideways eight displayed one box further to the right is the infinity symbol. This function is disabled in the Preferences. The symbol is therefore crossed through. Click the box to enable infinite for all lines that will be drawn. The infinite symbol will appear without being crossed out.

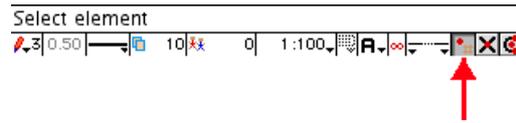


All lines that you draw with this setting will be infinite at first, but will then be cut to the required size later on.

None should be set as the final style for the lines one box further to the right. This is a default setting, but it is always worth checking it. The box has two pop-up menus which you can use to select arrowheads, for example. The left-hand pop-up menu defines the final style for the start of the line, the right-hand pop-up menu the final style for the end of the line.



You define the catch mode with the three boxes on the right. Click on the left-box of the three if it has not been selected yet.

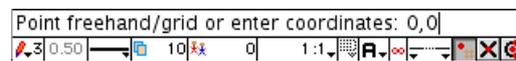


The First Line

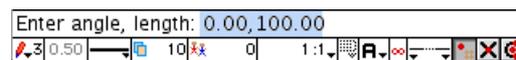
To draw the first line, click the top left tool in the toolbox. Hold down the mouse button. A pop-up menu opens where you can select the top right tool Line at an Angle.



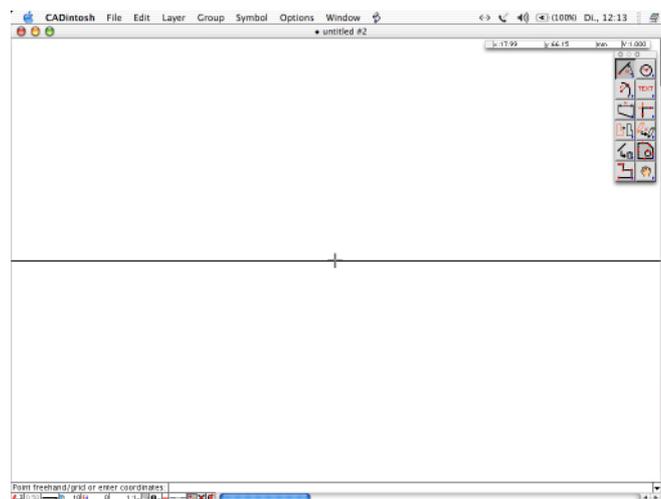
Enter 0, 0 as the coordinates at the bottom left. You may find it easier to enter a space instead of the comma. A comma will be added automatically. Press Return to complete your entry.



You will then be asked to enter the angle at the same point. Values that you do not need to change are preset in the entry box.

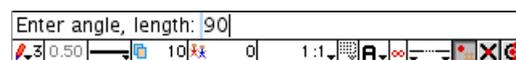


The first value is the angle. The line is horizontal at 0.00 degrees. Instead of the comma, a period will appear in the first value because this is the international standard. The value for the length of the line comes after the comma: 100.00, i.e. 100 meters. This value is not significant because we selected infinite as the basic setting. Press Return to confirm these values. The line will then be drawn.



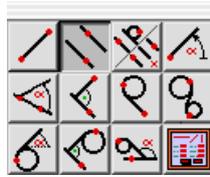
In the entry section at the bottom left, you will be asked to enter the values for the next line. Enter 0,0 for the first line and confirm the entry with Return.

You will then be asked to enter the angle and length for the line. The last values entered always appear as the preset values. Enter 90 as the value for the angle. You do not need to enter a length because we enabled infinity. Press Return to complete your entry. A vertical line will appear.



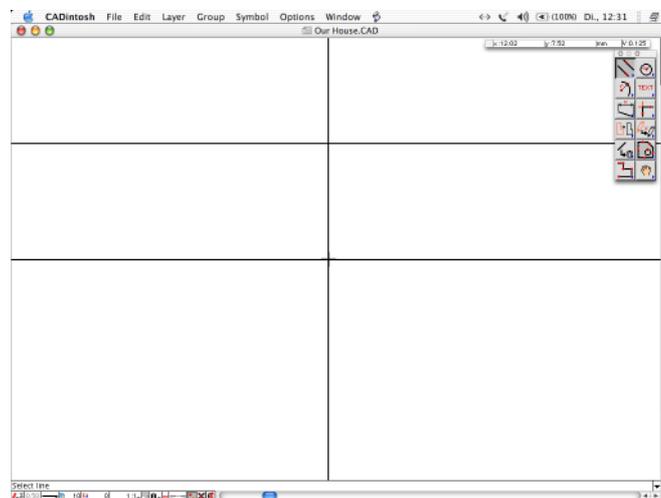
We need two more lines to make the base rectangle. To draw these lines, we will use the Parallel

Lines option because this is the fastest method. Open the pop-up menu for the tool at the top left of the toolbox and select the second tool from the left in the top line.

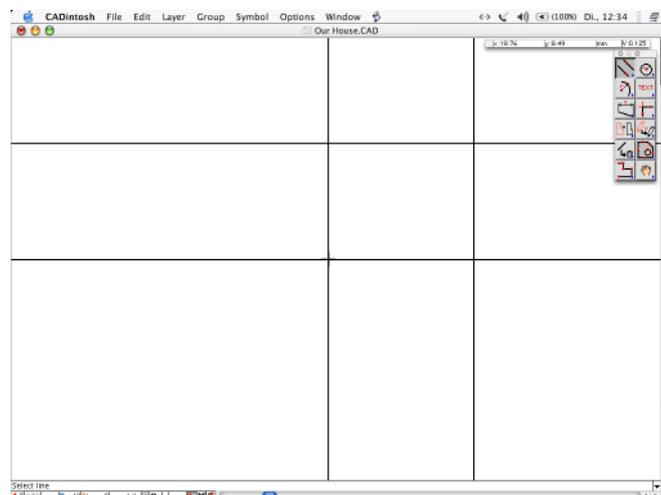


The mouse cursor will turn into a crosshair. At the bottom left of the window, you will be asked to click a line. This line will be the reference object. The new line will be drawn parallel to this reference line. Click the horizontal line. You do not have to click exactly on the line. You just have to click closer to the required line than to any of the others. The line is highlighted red to identify it as the reference object for a moment. At the bottom left, you are asked to enter the spacing. As our house is 8 m wide, enter 8 and confirm the entry with Return as usual.

The mouse cursor now takes the shape of a finger. Click above the first horizontal line on the working area. It does not matter where you click. A parallel line will be drawn on the working area spaced exactly 8 meters from the first line.

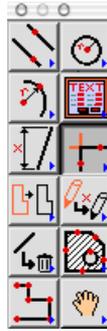


Now click the vertical line and enter the value for the spacing in the same way as for the line you just created. Our house will be 10 meters long. Enter 10 and end the entry with Return. Click the working area somewhere to the right of the first vertical line. CADintosh will draw a parallel line at a distance of 10 meters. Do not forget to end the entry with Return because the parallel lines will otherwise not be drawn at the required distance, but at the point you clicked. So we have now drawn the basic rectangle for our house.

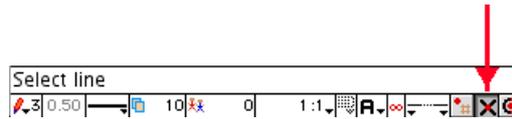


In the next step, we will remove the overhanging lines. This is called trimming. Save and select

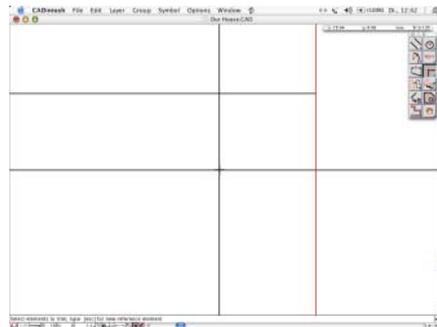
the third tool from the top in the right-hand column.



Select the second catch mode at the bottom left of the window frame.

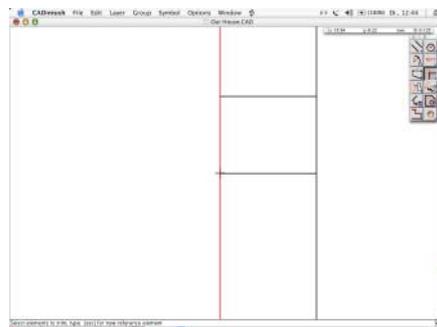


When you use the trim option, you select an element that then more or less acts as a knife edge. If you click a second element, it is cut by the first one like with a knife. Click the right-hand vertical line. The line is highlighted red to identify it as the reference object for trimming. Now click the top horizontal line along the section that should be kept, i.e. between the crossings of the vertical lines. The part overhanging to the right will be trimmed and thus deleted.



The right-hand vertical line is kept as a reference object. Click the middle of the bottom horizontal line between the crosspoints of the vertical lines to also trim the bottom horizontal lines.

Reset the reference line by pressing the Escape key. The right-hand vertical line no longer appears in red. Click the left-hand vertical line to set it as the reference object. Click the middle of the top and the bottom horizontal line between the crosspoints of the vertical lines to trim the overhanging lines on the left.

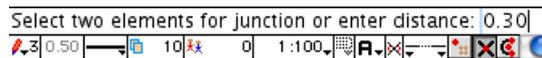


Trim the remaining overhanging lines by cancelling the reference object with Escape again and making the top and then the bottom horizontal line the reference object. Click the center areas to keep the overhangs as you have already done with the other lines. End trimming by switching to the tool for parallel lines at the top of the left-hand column in the toolbox.

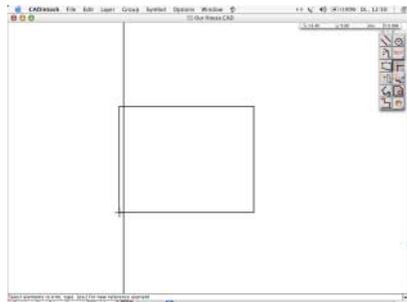
Next we will draw the outside walls with their actual thickness using a second inside line. Click the left-hand vertical line to draw a line parallel to it. At the bottom left of the window, you will be asked to enter the spacing for the new line. The walls will be 30 cm thick. Therefore enter 0.3 since the unit is meters. Confirm the entry with Return and click to the right of the left-hand

vertical line.

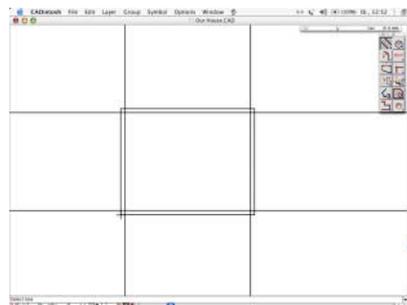
Select two elements for junction or enter distance: 0.30



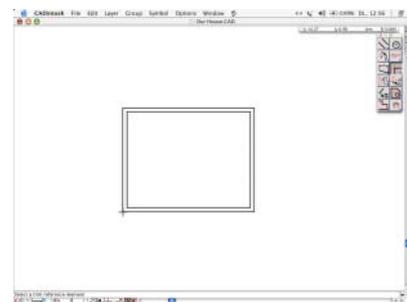
The result is a parallel line that overruns infinitely in both directions and will therefore have to be trimmed later on.



Now click the bottom horizontal line and confirm the suggested last entered value of 0.30 meters with Return. Click above the bottom horizontal line. CADintosh will draw the inside wall. Proceed in the same way with the two remaining walls. Do not forget to confirm the suggested value for the suggested value with Return otherwise the line will be drawn at the point you click and with the wrong spacing.

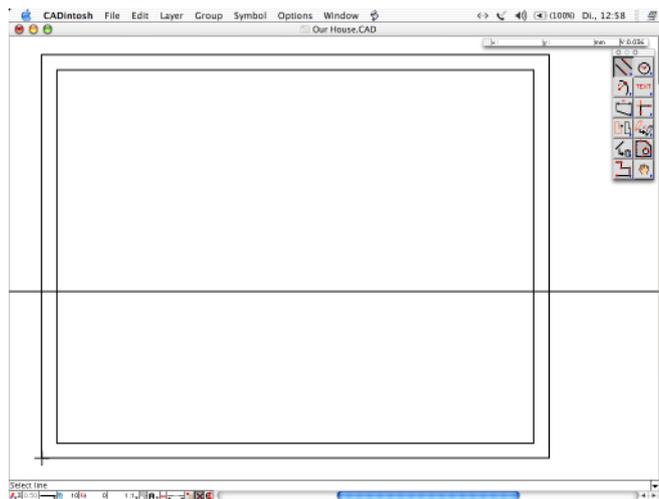


The overhanging lines need to be trimmed in the next step. Proceed as described above. Select the trimming tool in the toolbar (second column, third line). Click the second horizontal line from the top to trim along it. Click the two vertical lines inside the rectangle and proceed in the same way on all sides. CADintosh will not redraw the content of the screen after each work step since this can take slightly longer with complex drawings and would be annoying. Therefore you will see small gaps in the lines at the points where they were covered by other lines that have been deleted. You can press F11 to refresh the screen and display the lines continuously.

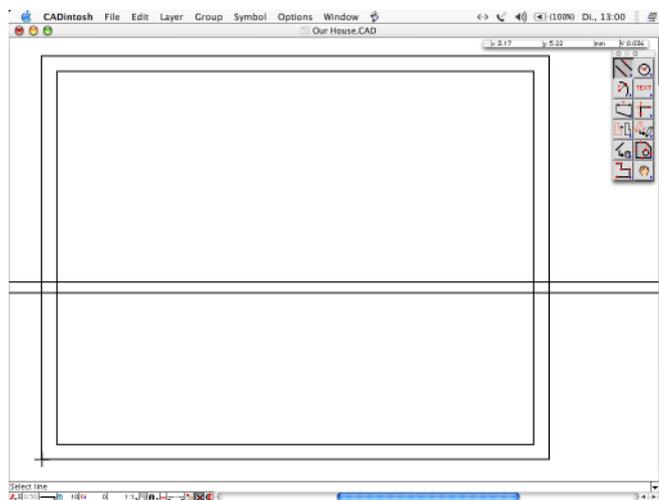


Press F12 to zoom the drawing until it fits the window. Next we will draw an inside wall. Select the tool for parallel lines again and click the inside of the bottom wall. Enter 3 at the bottom left as the inside wall will be 3 meters from the selected outside wall. Confirm the entry with Return

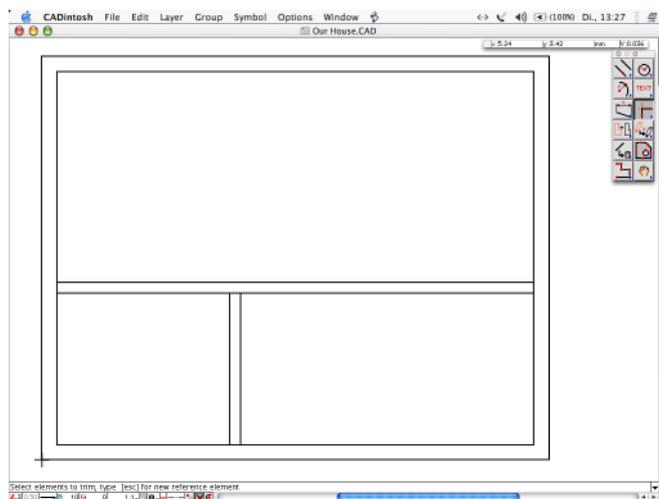
and click the area above the reference line.



Cancel the reference line with Escape. Select the new line as a reference line and draw another line over this line with a spacing of 0.22 meters using the same technique. Trim the new lines so that they end at the inside walls.

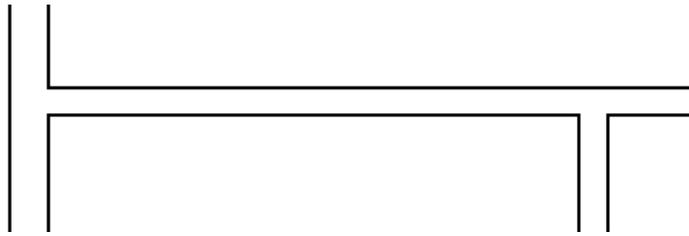


The next inside wall will divide the bottom room into two rooms. Draw a parallel line to the right-hand inside wall and a parallel line to the new line at a spacing of 0.22 m. Trim the new lines. The results should be the same as in the following screenshot.

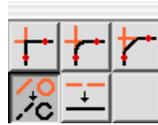


In a proper architectural drawing, the joins between the inside walls and the outside walls are

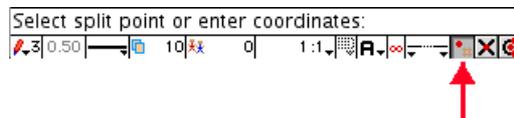
drawn open.



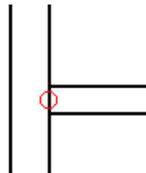
Use the Split option to create these gaps. Select the Split tool from the third row of the right-hand column in the toolbox using the pop-up menu. It is at the bottom left of the pop-up menu that opens.



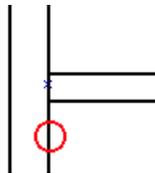
Select the freehand catch mode at the bottom left of the window with the third icon from the right.



Now click the middle of the outside wall at the point where the line should be broken.



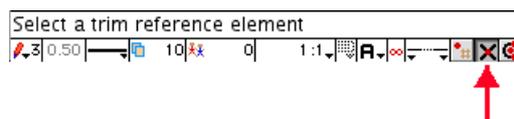
CADintosh marks the point with a small cross. Then click the same line under the inside wall.



The line will be broken at the point marked with the cross. You cannot see a gap, however, because the two parts meet each other. We will achieve this by using the trim option to delete the small parts that still reach from the broken point to the outside of the inside wall. Select the trim option for sharp corners in the toolbox.

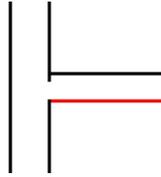


Select the mode for objects again as the catch mode at the bottom left of the window, second from the right.

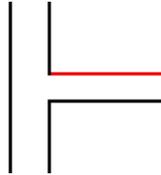


Click the bottom line of the inside wall as it will be the "knife", i.e. the reference object. Then click

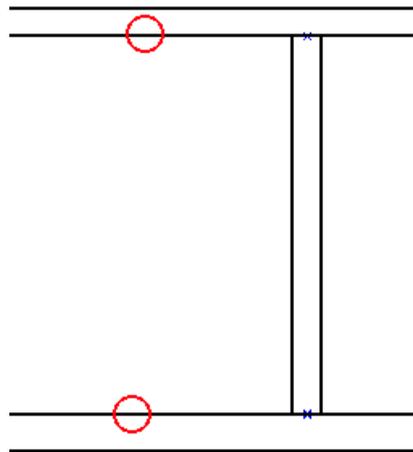
the horizontal line under the inside wall. The small part above the corner point will be deleted.



Reset the reference object with Escape and click the top line of the inside wall to make it the new reference object. Click the horizontal line on the inside of the outside wall above the inside wall to trim the second part of the unwanted line.

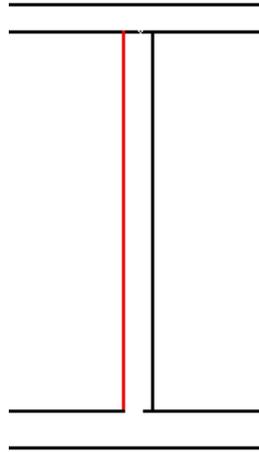


The walls are now joined completely. If you want to remove the red marking of the reference line, press Escape. Repeat the break and trim process on the right-hand outside wall to practice. You can break the two other points at the top and bottom on the small inside wall in one action. Click the bottom breaking point. A small cross will appear. Click the line to the left of the wall join, i.e. roughly where the red circle is positioned in the following picture. Also click the bottom line of the long inside wall. Another cross appears at the point to be broken.

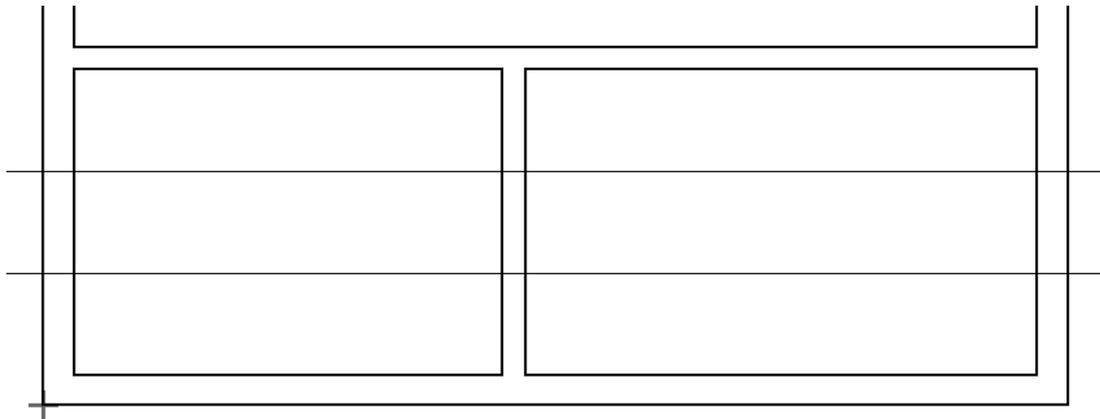


There is now an invisible vertical line running from the first point you clicked. All horizontal lines that are cut by this line will be marked at this crossing for breaking when you click them. Switch the catch mode to object mode (second from right) and trim the overhanging line ends

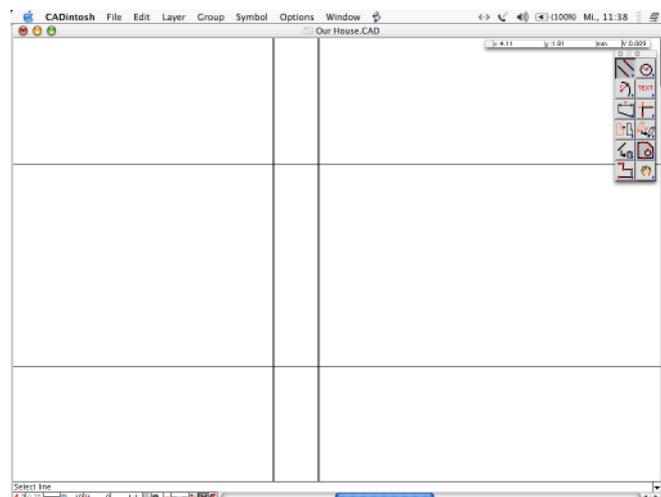
with the trimming tool.



Next we will draw a door on the short inside wall. At the bottom left, select pen 2 that draws 0.35 mm thick lines. First draw a line parallel to the inside line of the bottom outside wall with a spacing of one meter and then another line parallel to the new line also with a spacing of one meter. The results should be the same as the following screenshot.



We only need the parts of the two new lines that are inside the inside wall. Zoom the picture to be make trimming easier. Hold down the Alt key and drag open a rectangle over the area to be enlarged. CADintosh does not only show a rectangle, but also all open palettes so that you can see which parts of the drawing will be hidden after zooming.



Select the trim tool and click the right-hand vertical line as the reference object. Click inside the inside wall on both horizontal lines. Cancel the reference line with Escape and click the left-hand vertical line as the reference object. Click the horizontal lines inside the inside wall again because

these are the parts we want to keep.



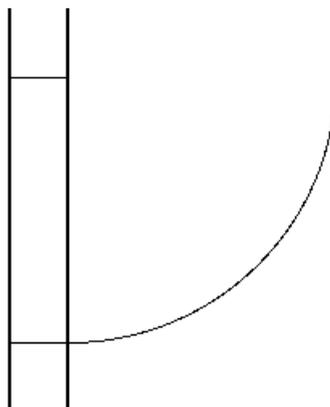
That leaves the inside wall with a door opening.

Next we will draw the door path with a curve. Select the **Arc Defined by a Center and Radius** tool from the top left of the toolbox.

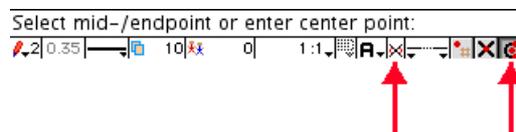


In the drawing, we need to mark a point that will be the centerpoint for the curve. At the bottom left of the window, select the right-hand catch mode for points and click the top short line of the door opening to the right of its center. A small cross appears at the right-hand end of the line.

Enter 1 as the value at the bottom left next to **Select mid-/endpoint or enter radius:** as the curve will have a radius of one meter. Press Return to complete your entry. Next you are asked with **Select mid-/endpoint for start point or start angle:** to enter, in our case, the start of the curve with an angle. Imagine there is a circle around the previously marked point. The zero degrees position is on the right where east would be on a compass. As is standard in mathematics, the 90 degrees position is at the top where north is on a compass. There is an angle of 180 degrees at the west position and an angle of 270 degrees at the south position. As our curve stretches from "south pole" to "east pole", we should enter 270 degrees as the starting angle at the bottom left of the window and confirm with Return. This query appears: Select mid-/endpoint for end point or enter end angle. Enter a zero and end the entries with Return. The curve is drawn for the door.



Finally we will draw another line from the open curve end to the broken wall. Disable infinity by clicking the infinity symbol and select the catch mode on the right for points.

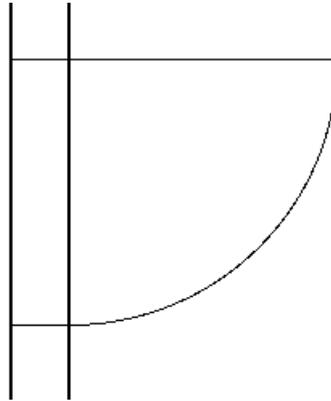


We need the tool for drawing lines from point-to-point from the toolbox. Open the pop-up menu

for the tool at the top left of the toolbox and select the point-to-point tool at the top left..



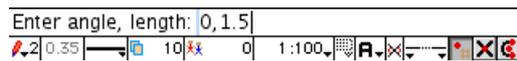
Click the open end of the curve. A small cross will appear at the end of the curve. Click the top short line of the doorway to the right of its center. Another cross appears at the right-hand end of the line. CADintosh draws a line between the two points marked with a cross.



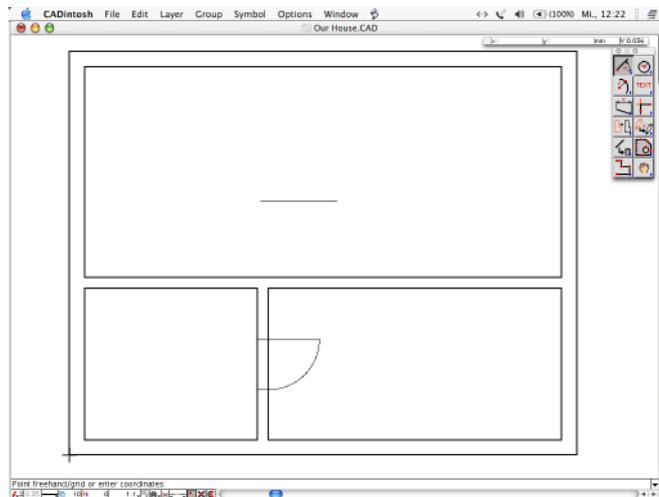
Finally, we will draw a table that can be moved and rotated freely as an example of furniture. Using the pop-up menu, select the Line at an Angle tool from the top left of the toolbox.



Select the **Freehand** catch mode on the left and click the center of the top left room. At the bottom left of the window, you will be asked to enter the angle and length for the new line that will be drawn from the point you clicked. Enter a zero for the angle and 1.5 as the length.



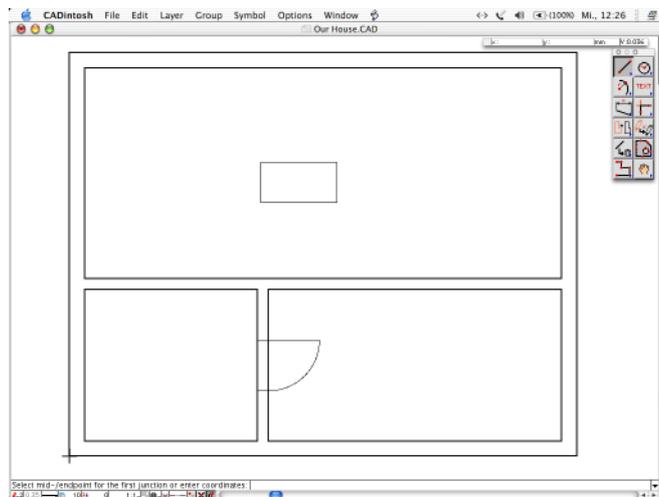
The first edge of the table will appear.



Select the tool for drawing parallel lines and click the line you just created. Enter 0.8 as the spacing at the bottom left and end the entry with Return. Click over the first line of the table to draw the second outside edge.

Select the tool for point-to-point lines that we also used for the last line of the door path and

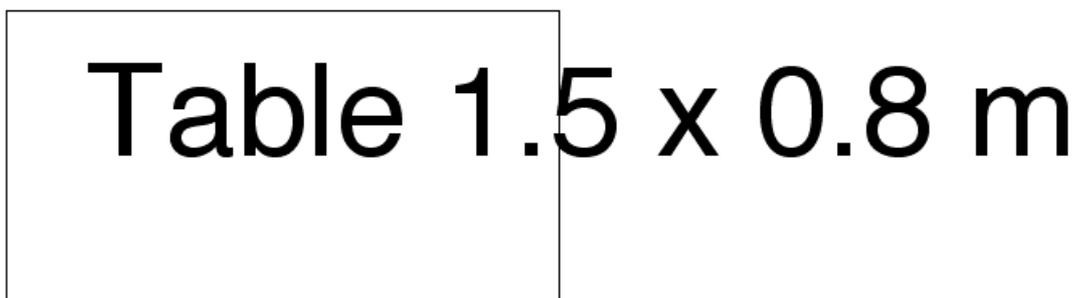
select the right-hand catch mode for points. Click the top line of the table to the right of its center and then the bottom line of the table also to the right of its center. CADintosh will join the two line ends with a line. Click the lines again, but this time to the left of its center to connect the left-hand line ends.



We will add a label so that the table is always recognizable as a table. Select the text tool from the right-hand column of the toolbar in the second line.



Click the Freehand catch mode on the left and click the left-hand area inside the table. Enter "Table 1.5 x 0.8 m" as the text at the bottom left of the window. Press Return to complete your entry. The text will be too large at first.

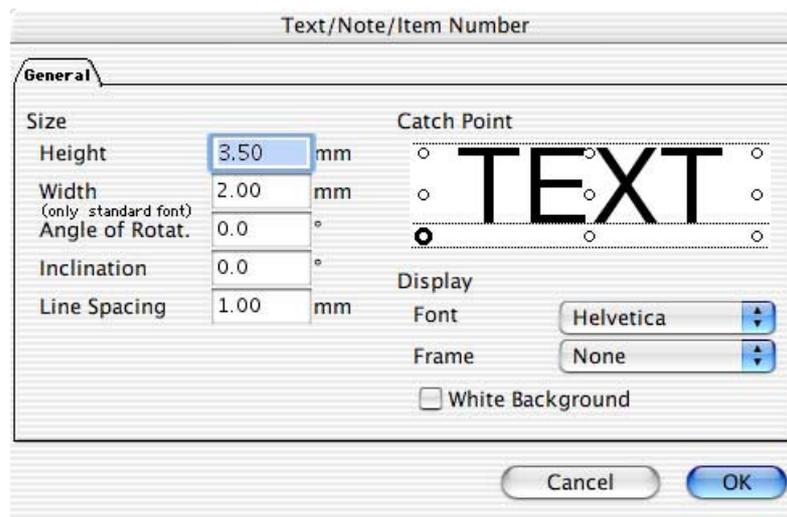


Using the pop-up menu for the text tool, select the text tool for changing parameters:



Click the text. A dialog with text settings opens. This may take a while if you have installed a large

number of fonts.

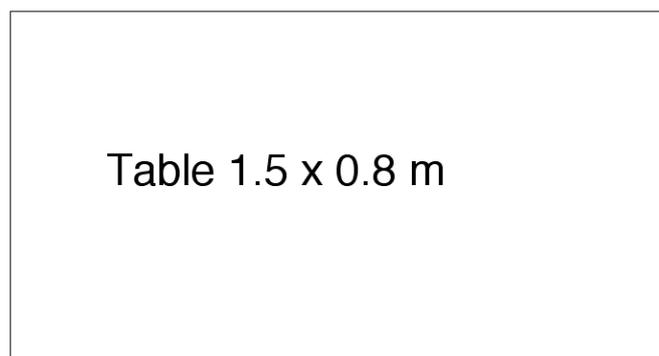


Enter 1mm as the height. The font will then be shown smaller. Refresh the screen by pressing F11 as parts of the old font are sometimes left over.

Using the freehand tool for text, you can now move text objects.



Click the text and it will then be shown in a rectangle. Now click another point. The text will be moved to the point you clicked.



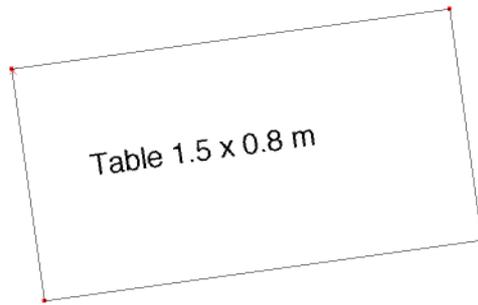
The table needs to be converted into a symbol so it can be moved and rotated freely together with the label. Select the **Symbol from Window** option from the **Symbol** menu on the top edge of the screen and drag open a rectangle with the mouse to cover the whole table. The selected objects will be displayed red. Press Return to confirm the selection. Simply by clicking you can add further parts of the drawing to the selection or remove them again.

At the bottom left of the window, CADintosh will ask you to define a catch point. This catch point is the point in our new symbol that will appear at the position you click when inserting the symbol. This is normally the top left corner.

Select the right-hand catch mode for points and click the top left corner. Next you will be asked at the bottom left of the window to enter the name for the symbol. Enter "Table 1.5 x 0.8 m" so you can recognize the table later on.

Press Return to complete your entry. The table is now a symbol. This means that you can move it freely in freehand mode.

In the toolbox at the bottom right, select the tool for freehand moving and click the table symbol along one of its lines or on the writing. If you hit it, the outline will turn red and handles will appear on the corners. You can hold down the mouse button and move the symbol. If you click one of the handles, you can rotate the symbol freely around its reference point.



Select **Window / Show Symbol Table**. This palette displays all symbols that are currently available. You can also import symbols from ready-made libraries.

To insert a symbol from the Symbol Table, click it in the Symbol Table. Then, in freehand mode, click any number of points in your drawing to insert it. Press Escape once you have finished inserting.